

Title: Higher Resolution Observations of the
Accretion Disk in NGC 4261

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The physical conditions in the inner parsec of accretion disks believed to orbit the central black holes in active galactic nuclei can be probed by imaging the absorption of background radio emission by ionized gas in the disk. We report high angular resolution observations of the nearby galaxy NGC 4261 which show evidence for free-free absorption by a thin, nearly edge-on disk at several frequencies. Because free-free absorption is much larger at lower frequencies, the longest possible baselines are needed to provide adequate angular resolution; observing at higher frequencies to improve resolution does not help. We used trans-Pacific baselines and the HALCA satellite to obtain higher resolution than was previously available at 1.6 and 4.9 GHz. The angular width and the depth of the absorption appears to increase with decreasing frequency, as expected.

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